



ELSEVIER

Comput. Methods Appl. Mech. Engrg. 116 (1994) xiii–xv

**Computer methods
in applied
mechanics and
engineering**

Contents

Preface – What is high order?	xi
Plenary lectures	
Sum-accelerated pseudospectral methods: finite differences and sech-weighted differences <i>J.P. Boyd</i>	1
Stabilization of spectral methods by finite element bubble functions <i>C. Canuto</i>	13
Resolution properties of the Fourier method for discontinuous waves <i>D. Gottlieb and C.-W. Shu</i>	27
Effective spectral approximations of convection–diffusion equations <i>F. Pasquarelli and A. Quarteroni</i>	39
Domain decomposition	
Resolution of fourth-order problems by the mortar element method <i>Z. Belhachmi and C. Bernardi</i>	53
A spectral element methodology tuned to parallel implementations <i>F. Ben Belgacem and Y. Maday</i>	59
Spectral element methods for large scale parallel Navier–Stokes calculations <i>P.F. Fischer and E.M. Rønquist</i>	69
Adaptive mesh strategies for the spectral element method <i>C. Mavriplis</i>	77
Multidomain decomposition of curved geometries in the Chebyshev collocation method for thermal problems <i>C.R. Schneidesch and M.O. Deville</i>	87
Hyperbolic equations	
An essentially non-oscillatory reconstruction procedure on finite-element type meshes: application to compressible flows <i>R. Abgrall</i>	95
On discontinuous solutions of hyperbolic equations <i>K.S. Eckhoff</i>	103

Spectral element-FCT method for the one- and two-dimensional compressible Euler equations <i>J.G. Giannakouros, D. Sidilkover and G.E. Karniadakis</i>	113
Filtering non-periodic functions <i>S.M. Ould Kaber</i>	123
Spectral methods for 2D Riemann problems <i>S.M. Ould Kaber and C. Rosier</i>	131
Space-time spectral element method for solution of second-order hyperbolic equations <i>U. Zrahia and P. Bar-Yoseph</i>	135
<i>p</i>-Version	
The <i>p</i> and <i>h-p</i> versions of some finite element methods for Stokes' problem <i>S. Jensen and S. Zhang</i>	147
Superconvergence phenomena in the finite element method <i>M. Křížek</i>	157
Analysis of the interface singularity of a two-fluid flow by <i>h</i> and <i>h-p</i> finite elements <i>F. Levieux, D. Berghezan and F. Dupret</i>	165
An iterative solver for <i>p</i> -version finite elements in three dimensions <i>J. Mandel</i>	175
Combining hierarchic high order and mixed-interpolated finite elements for Reissner-Mindlin plate problems <i>T. Scapolla and L.D. Croce</i>	185
Preconditioners	
Preconditioned Chebyshev collocation methods and triangular finite elements <i>M.O. Deville, E.H. Mund and V. Van Kemenade</i>	193
A Chebyshev collocation algorithm for the solution of advection-diffusion equations <i>A. Pinelli, C. Benocci and M. Deville</i>	201
Time schemes	
A high order characteristics method for the incompressible Navier-Stokes equations <i>K. Boukir, Y. Maday and B. Métivet</i>	211
Higher order alternate directions methods <i>M. Schatzman</i>	219
A spectral Lagrange-Galerkin method for convection-dominated diffusion problems <i>A. Ware</i>	227
Various high order methods	
Polynomial extensions of compatible polynomial traces in three dimensions <i>F. Ben Belgacem</i>	235

Extrapolation, combination, and sparse grid techniques for elliptic boundary value problems <i>H. Bungartz, M. Griebel and U. Rüde</i>	243
A fast solver for elliptic boundary-value problems in the square <i>D. Funaro</i>	253
High order numerical quadratures for layer potentials over curved domains in \mathbb{R}^3 <i>J.-L. Guermond</i>	257
High order finite differences methods on non-smooth domains <i>P. Olsson</i>	265
Higher order uniformly convergent methods for singular perturbation problems <i>H.-G. Roos</i>	273
On the eigenvalues of second-order pseudospectral differentiation operators <i>B.D. Welfert</i>	281
Wavelets	
A dynamically adaptive wavelet method for solving partial differential equations <i>S. Bertoluzza, Y. Maday and J.C. Ravel</i>	293
Towards a method for solving partial differential equations by using wavelet packet bases <i>P. Joly, Y. Maday and V. Perrier</i>	301
Wavelet algorithms for numerical resolution of partial differential equations <i>S. Lazaar, Pj. Ponenti, J. Liandrat and Ph. Tchamitchian</i>	309
Instructions to Authors	315
Author Index Volume 116	317

